

REMARKS

In Office Action mailed on March 3, 2003, the Examiner rejected claims 1, 6, 8-13, 17 and 19 under 35 U.S.C. §112, second paragraph, as indefinite. By this amendment applicants amended claim 1, removing the honeycomb form limitation, amended claim 9 to overcome the Examiner rejection of insufficient antecedent basis, and claims 13 and 19 to overcome Examiner's §112 rejection.

Examiner stated that claims 6, 10 and 11 would be allowable if rewritten in independent form to include all limitations of claim 1. Added claims 20, 21 and 22 represent claims 6, 10 and 11, respectively, written in independent form, and claims 6, 10 and 11 have been cancelled.

REJECTION UNDER 35 U.S.C. §102(b)

Claims 1, 8, 9, 12, 13, 17 and 19 were rejected under 35 U.S.C. §102(b) as anticipated by Lem et al. (WO 91/07632). Applicants appreciate the time and consideration provided by the Examiner in reviewing this application, however, respectfully traverse the rejection of the claims at least for the following reasons.

Anticipation under 35 U.S.C. §102 requires that each and every claimed feature be disclosed by a single prior art reference. Therefore, the prior art reference relied upon by the Examiner must disclose an article that is reasonably identical to and includes at least every material element of the claimed ballistic armor panel. Applicant respectfully submits that Lem et al. do not disclose, or suggest, each and every claimed feature of the subject invention.

In accordance with the present application, an armor panel is formed by a single board carrying a plurality of discrete hard bodies. The board is provided with a plurality of adjoining through-going polygonal apertures, which accommodate the bodies therein. The bodies have cross-sectional configuration, which matches the cross-sectional configuration of the apertures. It should be born in mind that the board consists of a receiving portion (the part with the apertures) and a peripheral portion surrounding the receiving portion. However, the board is a solid item and both portions are integral parts of the same board. Claim 1 is amended to clarify the subject matter of the invention and to distinguish it from the prior art, indicating that the integral board is made of a hard material, has a peripheral portion and a receiving portion with adjoining apertures accommodating hard bodies.

According to the newly added independent claims, each aperture has a rim flush with the face of the board (Claim 20), the board has bores for attaching to the object (Claim 21), and the board has fasteners extending through the apertures (Claim 22).

Lem et al. teach a ballistic resistant composite armor, which has a sandwiched structure consisting of a hard impact layer 12 including one or more ceramic bodies, and of a backing layer 18 supporting the impact layer. Two dedicated separate items retain the impact layer, i.e., a peripheral retaining means 14, which frames the hard impact layer, and a peripheral retaining means 16, which is in fact a grid defining an interconnected network positioned about the periphery of each of said ceramic bodies and thus defining the barrier walls for individual cells filled with the ceramic bodies.

In Example 1 of Lem et al., the structure of the armor is explicitly described. It consists of a checker board divided by aluminum barrier wall into cells and placed into an aluminum frame. Each cell accommodates one alumina tile. In other words, the ceramic bodies are not inserted within the apertures made in the board (e.g., by drilling) as in the present application. In contrast, the bodies are arranged in cells by virtue of a backing layer, a peripheral frame and an internal grid. Lem et al. explicitly teaches a multilayer complex ballistic armor, wherein the peripheral ceramic body retaining means 16 and the hard impact layer retaining means 14 are composed of an "elastic material" (page 8, lines 19-21), which is different from the material of the ceramic impact layer 12 and that of the ceramic bodies 20. Therefore, Lem et al. clearly teach away from the present invention which discloses an integral armor board. Lem et al. neither teach the board apertures having rims, nor suggest a board having bores and fasteners for attaching the armor to the object.

In the present invention the structure of the board allows to distribute polygonal bodies with maximum surface density, i.e., with minimum distance between the adjacent ceramic bodies, to effectively dissipate the impact force. Since in the present application the apertures are made in the integral board this distance could be kept at its minimum. In practice, this distance lies between 0.5mm and 1mm. In Lem et al., which employs dedicated grid to arrange the cells, this distance is about 15mm (Example 1).

In view of the above, it is submitted that claim 1 as hereby amended and re-presented independent claims 20-22 are neither anticipated nor obvious to one skilled in the art in light of Lem et al.

The Examiner also stated that U.S. Patent No. 5,014,593 to Auyer et al. may be applicable if the limitation of the honeycomb is removed. The armor in Auyer et al. has an outer (14)

and an inner (18) perforated steel plates with triangular holes, the perforated plates being spaced apart by fillers (22 and 24), made of foam, plastic or wood (see claim 6), and the perforated plates being connected to a backing plate (28). Although U.S. Patent No. 5,014,593 discloses a perforated armor, it clearly teaches away from using any kind of hard insertions into the perforations.

In view of the above, claim 1 and the re-presented independent claims 20-22, which are the former dependent claims 6, 10 and 11, which have been rewritten as suggested by the Examiner to avoid the inferential claiming and to include all the limitations of claim 1, are novel and inventive, and the application is in condition for allowance.

DEPENDENT CLAIMS

It is submitted that all of the pending dependent claims are novel and inventive as based on novel independent claims 1 and 20-22. Applicants respectfully submit that the pending claims as amended by this Amendment are allowable over the prior art and the application is in condition for allowance.

The Commissioner is hereby authorized to charge any additional fees which may be required in this application under 37 C.F.R. §§1.16-1.17 during its entire pendency, or credit any overpayment, to Deposit Account No. 06-1135. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 06-1135.

Respectfully submitted,

6/27/03
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